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A CLIMATE FOR TRANSFER MODEL

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Although transfer of training to the job has been an important issue for over 30 years, research on variables influencing transfer has been limited. Researchers have more recently called for the systematic study of factors influencing transfer of training (e.g., Baldwin & Ford, 1988; Goldstein & Thayer, 1987). Two aspects of the training process that facilitate positive transfer are: (1) transfer-enhancing activities that occur during the training program itself; and (2) a favorable climate for transfer in the post-training setting. The purpose of this paper is to describe the development of constructs in these two areas and questionnaires intended to measure the constructs. Previous models of the training process are described, followed by a more detailed discussion of in-training transfer-enhancing activities and climate for transfer. A new, simplified model is proposed, followed by a description of questionnaires that measure these two aspects of the training process, and a proposed research plan.

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PREFACE

This report documents a theoretical and conceptual view for examining climate for transfer. This work was performed under the University Resident Research Program (URRP) under in-house Work Unit No. 1121-12-00. The authors are grateful to Michele Morales Olea, Dennis Gettman, Winston Bennett and Brandi Barham for their assistance.

A CLIMATE FOR TRANSFER MODEL

Summary

The issue of transfer of training to the job setting has been explored and discussed by many; e.g., Baldwin and Ford (1988), Goldstein (1993), McGehee and Thayer (1961), Michalak and Yager (1979), Wexley and Latham (1991). Research on variables contributing to transfer, however, has been limited by a number of factors, including conceptualizations of the learning/transfer process (Schmidt & Bjork, 1992), the acceptance of training as a "given good," the reluctance of trainers/organizations to evaluate training programs for fear of negative findings, and the difficulty involved in measuring transfer on the job (McGehee & Thayer, 1961). Recently, more attention has been paid to the problems of training transfer and to the factors contributing to it. Goldstein and Thayer (1987) collected a number of critical incidents regarding inhibitors and facilitators of training transfer, while Baldwin and Ford (1988) published a review and critique of the literature and urged research on factors affecting transfer of training.

Two aspects of the training process that facilitate positive transfer are: (1) transfer enhancing activities that occur during the training program itself; and (2) a favorable climate for transfer in the post-training setting. The purpose of this paper is to describe the development of constructs in these two areas and questionnaires intended to measure the constructs. In the following sections, previous models of the training process are briefly introduced, ending with a more detailed discussion of the two aspects of the process that are the focus of this paper. A new, simplified model is proposed, followed by a description of the two questionnaires that measure these aspects of the training process, and a proposed research plan.

I. INTRODUCTION

At a general level, several investigators have examined situational constraints to performance on the job, some of which seem to have relevance to the inhibition of transfer of training. Peters, O'Connor and colleagues (Peters & O'Connor, 1980; Eulberg, O'Connor, Peters, & Watson, 1984) pointed to a number of situational variables that inhibited job performance, including job-related information, tools and equipment, materials and supplies, budgetary support, services and help from others, task preparation, time availability and work environment.

Several researchers have examined transfer itself. Fleishman (1953) and Fleishman and Harris (1955) showed that leader climate affected the transfer of human relations training to the job. Huczynski and Lewis (1980) looked at attempts by trainees to transfer training to the job. Trainees who reported that they had supervisory support for taking training were more likely to report trying the training on the job. They also reported that transfer was inhibited by work overload, crises, and lack of acceptance by coworkers. Ford, Quinones, Sego, and Sorra (1992) surveyed USAF airmen 4 months following technical training and found that they had different opportunities to perform the tasks for which they had been trained. These opportunities were predicted by supervisors' attitudes toward the trainee and workgroup support, as well as by the

airmen's cognitive ability and self-efficacy. Mathieu, Tannenbaum and Salas (1992) found that perceived situational constraints of employees trained in proof-reading had a negative impact on training motivation.

Previous Training Models

Noe (1986) and Noe and Schmitt (1986) developed and tested a model of factors affecting training and transfer, that was subsequently tested by Facteau, Dobbins, Russell, Ladd, and Kudisch (1992) and Williams, Thayer and Pond (1991). Noe and Schmitt's (1986) study involved a small sample size (N=60), and found little support for the model as proposed. They proposed an alternate, as did Facteau, et al.., and found limited support for the revision. Interestingly enough, Noe & Schmitt dropped the variable Environmental Favorability from their final model. The final Facteau, et al.. model showed an effect of subordinate and peer support for self-reported transfer, but not for supervisor and top management support. Williams, et al. (1991) tested the original Noe (1986) model in a study of 111 supervisors and managers who went through a rating error reduction training program. Their findings supported portions of the original Noe and Schmitt (1986) model. Their final model showed an effect of Perceptions of Environmental Favorability on Motivation to Transfer, but the model was not extended to explore the relationship of that variable to transfer. Even though Facteau, et al. (1992) involved a survey of attitudes toward a general management curriculum, rather than a specific training program, one might conclude that the Williams, et al. (1991) and Facteau, et al. (1992) reached comparable conclusions regarding environmental influences on transfer. Of great interest is the fact that neither the Williams, et al. (1991) nor Noe and Schmitt (1986) final models show any relationship between motivation to learn and learning, a finding contradictory to many laboratory studies.

As one reviews the various tests of the Noe (1986) model, very little support for it is found. Noe and Schmitt (1986) radically revised the original model. Williams, et al. (1991) found limited support for a few of the proposed paths, as did Facteau, et al. (1992). Mathieu, et al. (1992) refer to Noe and Schmitt's (1986) model but test a different one for which they found only limited support. For various reasons, these studies are deficient in their methods and analyses. For example, except for Facteau, et al. (1992), the small sample sizes do not meet generally accepted requirements for factor analysis, LISREL, and regression for the number of variables studied (Nunnally, 1978): 60 for Noe and Schmitt (1986), 111 for Williams, et al. (1991), and 106 for Mathieu, et al. (1992).

Tannenbaum, Cannon-Bowers, Salas and Mathieu (1992) presented a very elaborate model of the entire training process and tested a small portion of it with Navy recruit trainees. They found that cognitive ability, age, gender, physical self-efficacy and pre-training motivation predicted learning, while demerits/inspection was related to expectations and cognitive ability. Further, reactions to training were related to pre-training motivation, physical self-efficacy and age. The measures used in these studies would be very useful in any study of airman basic training, but are not of use for present purposes. They do not deal with transfer, and concentrate on aspects of basic training.

Rouiller and Goldstein (1991) and Rouiller (1989) developed a model of the climate for transfer of training based on the work of Luthans and Kreitner (1985) and tested it in a study of the transfer of management training in a fast-food company. They found that transfer climate had a substantial impact upon the transfer of trained behaviors to 102 new managers' jobs. The two components of climate, situational cues and consequences (reinforcers or extinction processes), contributed about equally to the facilitation or inhibition of transfer. Further, both transfer climate and transfer contributed to job performance. However, this study suffers from a small sample size and a failure to demonstrate the construct validity of its measures.

Tracey (1992) replicated portions of Rouiller's (1989) work and again found that climate for transfer, as well as "continuous learning culture," were related to supervisory ratings of 104 manager trainees in 52 stores of a supermarket chain. It is interesting to note that Tracey followed Rouiller's item wording quite faithfully, except that he deleted items dealing with self-control cues and sharply reduced the number of social cue items. It should be noted, however, that a factor analysis of the transfer climate items yielded only one factor. Similarly, continuous learning culture yielded only one factor, and the both factors were highly related.

Despite these criticisms of previous work, it appears that there is strong evidence that several factors contribute to transfer of training, with climate for transfer being one of them (Facteau, et al., 1992; Rouiller, 1989; Tracey, 1992; Williams, et al., 1991). It would also appear that the Ford, et al. (1992) opportunity to perform variable is actually a transfer indicator that is a function of the climate variables specified by Rouiller (1989). Their finding that the supervisor's perceptions of the trainee predicted opportunity to perform is consistent with that view.

Climate for transfer is probably a complex concept. Rouiller (1989), following Luthans and Kreitner (1985), suggested that it is made up of cues and consequences. The former included goal cues, social cues, task cues, and self-control cues. The latter included positive and negative reinforcement, punishment and extinction. As noted earlier, Tracey (1992) dropped self-control cues from his transfer climate measure on the grounds that those items were assessing things that did or did not occur in training. The proposed model will also remove those items from the climate measure. As trainees may be unable to distinguish between punishment and negative reinforcement, those two item categories will be collapsed into one, as indicated by the brackets in the model shown below.

Another set of variables affecting transfer are those usually considered during training itself. Many authors have described practices that occur in training that contribute to transfer and behavior maintenance on the job (Michalak & Yager, 1979; Zemke & Gunkler,1985; Goldstein, 1993). These include overlearning, fidelity, varied practice, principles-meaningfulness-learning points, cues to monitor one's own performance, relapse prevention training (Tziner, et al., 1991), goal setting (Wexley & Baldwin, 1986), and top management support. The key constructs in the new model, then, are climate for transfer and transfer-enhancing training activities.

It seems appropriate to include other variables affecting the quality or effectiveness of the training program itself, trainee ability (Ford, et al., 1992), trainee self efficacy (Ford, et al., 1992), previous level of knowledge and skill (Mathieu, et al., 1992), reaction to training (Kirkpatrick,

1976), and the amount trainees learn (Rouiller, 1989). As self-efficacy has been shown to affect transfer as well as learning, (Ford, et al. 1992), it is included in both places. Factors included in the various models described above may also contribute to earlier stages in the learning/training process, including locus of control (Williams, et al., 1991), job involvement (Noe & Schmitt, 1986), and career/job attitudes (Williams, et al., 1991).

A major objective of the present project is to develop instruments suitable for measuring the climate for transfer of training and transfer-enhancing training activities in the US Air Force. It is probable that such instruments would be better and more comprehensive and would lead to better research if they were based on a conceptual model of transfer. In developing such a model, we will concentrate on the climate variables and on those factors within training designed to facilitate transfer; e,g., overlearning, relapse prevention training, goal setting, etc. On the other hand, it seems appropriate to present a complete model of the training-transfer-performance sequence that would include variables shown to be relevant in previous research, such as ability, previous level of knowledge and skill, locus of control, and goal setting. It may also be helpful to include other variables that have been suggested or that have had limited support in previous work, such as reaction to previous training, reaction to present training, and self-efficacy.

Although much is known about the learning processes during training, those processes will not be dealt with for two reasons. First, they would make the model overly complex and unwieldy. Second, they would detract from the primary objective; the study of conditions affecting transfer once training is complete.

II. THE MODEL

On the left of the model are a number of variables that describe conditions of the trainee before training. The ones included are there because they have been suggested by others or have some empirical support. Baldwin and Ford (1988) and Mathieu, et al. (1992) suggest that reactions to previous training create a set of expectations as to the effectiveness of new training. Mathieu, et al. (1992) found that both education and level of performance on a work sample predicted post-training work sample performance, leading to the inclusion of previous knowledge and skill. Ford, et al. (1992) found that ability predicted opportunity to perform or behavior, but there was no measure of learning in this study. It seems reasonable to assume that ability would first have an impact on learning, as has been demonstrated elsewhere (Ghiselli, 1966), which results in the inclusion of this variable as a predictor of learning. Locus of control (Williams, et al., 1991), job involvement (Noe & Schmitt, 1986) and career/job attitudes (Williams, et al., 1991) have been shown to be related to motivation to learn, a variable that is frequently a surrogate for learning. As that variable is not included in this model, we show direct linkages to learning.

Moving to the right, learning is shown to be affected by reactions to training as suggested by Kirkpatrick (1976). Wexley and Baldwin (1986) showed that goal setting activities following training could enhance transfer and suggested that the failure of relapse prevention training to enhance transfer could have been the result of the failure to obtain the level of behavioral commitment obtained from goal setters. Tziner, Haccoun and Kadish (1991) found that Israeli

military instructors who had relapse prevention instruction as they went through training were judged by their supervisors to use the skills taught in training more than those without such instruction. There is good reason, therefore, to hypothesize that both will contribute to learning and transfer. Thus, goal setting and relapse prevention training are both shown as affecting learning and transfer.

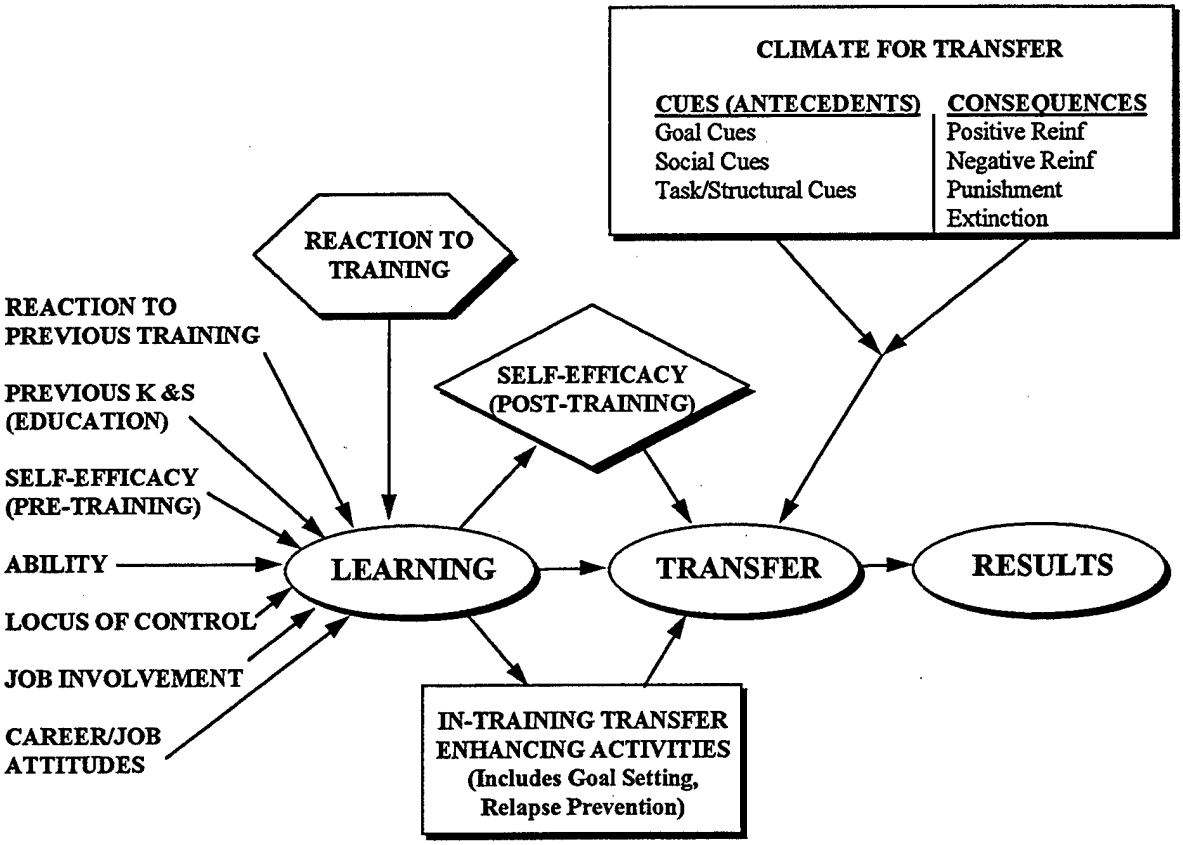

Figure 1. Training Transfer Model.

Self-Efficacy, or one's expectation or confidence in performing a task (Bandura, 1977), should be enhanced by training. Tannenbaum, Mathieu, Salas, and Cannon-Bowers (1991), and Latham (1989) suggest that self-efficacy be considered both as an antecedent to training and an outcome of it. The former demonstrate a contribution of self-efficacy to knowledge acquired in training and an increase in self-efficacy. Mathieu, Martinieau and Tannenbaum (1993) also demonstrated that self-efficacy can contribute to learning, that it is enhanced by training, and that it is related to performance improvement in bowling classes. As predicted and shown by Ford, et al. (1992), those high on this variable four months after training are more likely to try out new skills on the job. Similarly, Latham and Frayne (1989) found that self-management training enhanced self-efficacy and that self-efficacy predicted job attendance. Thus, self-efficacy enhances learning, and learning is shown to enhance self-efficacy, and the latter enhances transfer

and/or maintenance of behaviors on the job. Learning is also shown to have a direct effect on transfer by Rouiller (1989).

The final sets of variables leading to transfer are transfer-enhancing training activities and climate for transfer. Both are the major foci of this model and are targets for instrument development. McGehee and Thayer (1961), Michalak and Yager (1979), and Schmidt and Bjork (1992) point to a number of things that can be done to enhance transfer including overlearning (Driskell, et al., 1992), varied practice, physical and psychological fidelity, teaching of principles, etc. This category also includes goal setting (Wexley & Baldwin (1986) and relapse prevention training (Tziner, et al., 1991, Gist, et al., 1991), and self-management training (Frayne & Latham, 1987; Latham & Frayne, 1989). Thus, an instrument was developed to permit the trainee, trainer and/or observer to report on the presence of such transfer-enhancing elements included in the training.

Climate for transfer, or environmental favorability/unfavorability, has been shown to contribute to transfer (Rouiller, 1989; Williams, et al., 1991; Facteau et al., 1992; Ford et al., 1992; Tracey, 1992). This variable is made of two sets of variables, cues or antecedents and consequences, both of which have been shown to enhance transfer (Rouiller, 1989). The former deals with those cues in the transfer environment that may facilitate or inhibit transfer. Fellow airmen performing the job the way one was trained would be a social cue that facilitates transfer, while performing in some other way would be a social cue that might inhibit transfer. Goals set by the supervisor for the recent trainee to encourage the use of her/his training would be a goal cue, while using the same or different equipment as that used in training would be a facilitating or inhibiting structural cue.

On the right of Climate for transfer are the same set of consequence variables hypothesized by Rouiller (1989): Positive and negative reinforcement, punishment, and extinction. There is little doubt that these have an effect on learning and behavior (Rouiller, 1989).

In Rouiller's (1989) research, she combined all the cue items and consequence items into single scales, and both combined scales predicted Transfer. Adding these two scales also predicted Transfer. Tracey found only a single factor in his analysis of the climate items, but he limited the number of items in each scale to five. Further, the analysis included the culture items for a total of 57 items factor analyzed based on responses of 104 manager trainees. Such an analysis violates prescriptions suggested by statisticians such as Nunnally (1978).

Despite such findings, an attempt was made to develop an instrument that assesses each of the parts of both sets of variables, as such a distinction could enhance the diagnostic value of such an instrument. For example, one installation might have poor transfer climate because of an inhibiting social environment, while another might have faulty job design or structure. If these differences could be measured reliably and validly, the value of the instrument for corrective action would be enhanced. The same applies to differentiating among consequences and between cues and consequences. As to the latter, it may not be possible for the trainee to make this differentiation. For example, the trainee may not be able to differentiate between a supervisor

who fails to give the trainee an opportunity to practice new skills (a cue), and a supervisor who threatens if s/he performs in a way that differs from training (negative reinforcement). It seemed worth the effort, however, to develop items that might make such discriminations possible. Success would lead to a better understanding of the psychological processes involved which would, thereby, strengthen the model and result in a better diagnostic instrument.

The final link is that between transfer and results, or job performance. Note the distinction between transfer and results. The former refers to the appearance of the learned knowledge and skills on the job. The latter refers to the results of that transfer. The distinction is important, especially as it relates to the assessment of the content validity of the training. Too often training is developed and administered without the necessary task and organization analysis essential to content validity. If one notes high transfer and no change in job performance, one area of inquiry might be the content of the training. Assuming content validity, however, one would expect that transfer of the knowledge and skills taught would enhance Job performance as measured, for example, by productivity, quality, supervisory ratings, reduced scrap, etc. If the program was designed to teach self-management skills, we might see a set of new behaviors leading to a reduction in tardiness, absenteeism or an increase in timely task completion. Thus, the link between transfer and results is important to note.

Summary

A limited model of the training process has been presented that places emphasis on transfer of training. Two main elements are the focus of the model: in-training transfer enhancing activities and climate for transfer. Instruments were developed to measure these constructs in sufficient detail so that their component parts could be assessed. For transfer enhancing activities, items were developed to assess overlearning, fidelity, varied practice, principles/meaningfulness, self-monitoring cues, relapse prevention, goal setting, and top management support. For climate for transfer, an attempt will be made to measure the three types of antecedents or cues, as well as the four types of consequences.

III. INSTRUMENT DEVELOPMENT

The review of the literature revealed that researchers were using a variety of different items in their studies to measure the same constructs. Even those who stated that they were testing Noe's model did not use exactly the same items (Facteau, et al., 1992; Noe & Schmitt, 1986; Williams, Thayer & Pond, 1991). Tracey (1992) stayed reasonably close to the wording of Rouiller's items (1989) in his test of her model, but dropped one whole section of her questionnaire, as noted above. A summary of items used in these studies and their sources is in Appendix A.

Climate for Transfer Questionnaire

As one portion of the model was based directly on Rouiller's work, it was important to stay as close to her questionnaire items as feasible. Where necessary, her items were reworded so that they would be appropriate to an Air Force technical training and transfer setting, as opposed

to the fast food industry where she did the original research. Unfortunately, her instrument was unbalanced as to the number of items in each category: Goal cues, 5; Social cues, 20, Task cues, 4; Self-control cues, 12; Positive reinforcement, 7; Negative reinforcement, 5; Punishment, 6; Extinction, 4. The representation of social cues was reduced, negative reinforcement and punishment were combined, and additional items were developed for various categories based on a review of several sources (Eulberg, et al., 1984; Facteau, et al., 1992; Ford, et al., 1992; Goldstein & Thayer, 1987; Goldstein, 1993; Huczynski & Lewis, 1980; Latham, 1989; Noe & Schmitt, 1986; Peters & O'Connor, 1980; Tziner, et al., 1991). In addition, items dealing with self-control cues were incorporated in the transfer-enhancing questionnaire.

The final version of questionnaire contains 56 items: 6 goal cues, and 10 each for the other five categories (social cues, task cues, positive reinforcement, negative reinforcement/punishment, and extinction). All items were reviewed and edited by resident experts for appropriateness to the Air Force and for clarity. Appendix B contains all items that survived the editing process arranged by category, with notations as to the source of each item. Appendix C contains the final 56-item version of the questionnaire in which the items have been arranged in random order.

In Training Transfer-Enhancing Activities Questionnaire

As noted, some of the items in this instrument came from Rouiller's self-control cues. Others were developed based on literature dealing with the categories: overlearning, fidelity, varied practice, principles/meaningfulness, self-monitoring cues, relapse prevention, goal setting, and top management support (Baldwin & Ford, 1988; Driskell, et al., 1992; Frayne & Latham, 1987; Gist, et al., 1991; Goldstein, 1993; Latham & Frayne, 1989; Leifer & Newstrom, 1980; Mager & Pipe, 1984; McGehee & Thayer, 1961; Michalak & Yeager, 1979; Schmidt & Bjork, 1992; Tziner, et al., 1991; Wexley & Baldwin, 1986; Wexley & Latham, 1991; Zemke & Gunkler, 1985).

A retranslation process (Smith & Kendall, 1963) was conducted to determine the representativeness of each item for its intended category. Three research experts independently sorted the individual, randomly ordered items into categories, or constructs, that they judged each item to represent. Instructions similar to those used in this process are in Appendix D. There was complete agreement on 57 of the 70 items. The remaining 13 were rewritten to better fit the categories, and all "learning point" items were shifted from the "principles/meaningfulness" category to "self-control cues." The items are listed by category in Appendix E, and the final randomized version of the 70-item questionnaire is in Appendix F.

IV. PROPOSED RESEARCH PLAN

There are several research studies that could be conducted, some involving the instruments themselves and some involving tests of the model. Given the nature of the proposed research, it would be ideal to collect this data in conjunction with the implementation of the Training Efficiency and Effectiveness Methodology (Teachout, Sego & Ford, 1995a; 1995b).

Psychometric Studies

Each instrument contains categories of items. It is hypothesized that these categories are useful both theoretically and diagnostically. These instruments should be administered to sufficiently large samples to permit factor analyses to determine which factors are measured and whether they correspond to the categories. Given the analyses done by Tracey (1992), it is quite possible that the climate measure is made up of a single factor. On the other hand, Tracey's limitation of five items per category may have contributed to this finding. That is the reason for the attempt to develop a minimum of 10 items per category in the climate measure. In any event, a sample size of at least 10 times the number of items is indicated for such factor analyses (Nunnally,1978).

As to the Transfer-Enhancement measure, some categories contain only a few items. Despite this fact, it would still be useful to determine the instrument's factor structure. Further, there should be some correspondence between reports of goal setting and/or relapse prevention in training and the use of various goal cues on the job. If the two instruments can be given to the same sample, it would be possible to examine those relationships.

Transfer-Enhancement Questionnaire

Administration. Administer the Transfer-Enhancement Questionnaire to as many AF trainees in as many Air Force Specialties (AFS) as possible. The questionnaire can be administered at the end of training to assess all constructs except fidelity, since it requires a comparison of the similarity of equipment and procedures between the training setting and the job setting. Administration is recommended to both trainees and instructors.

Assess factor structure. The primary purpose of this phase is to assess the factor structure of the questionnaire. This will indicate the usefulness of the questionnaire in studying the efficacy of transfer-enhancing activities in the training transfer process.

Determine predictability of transfer-enhancing activities in AF training. The relative comparison of survey results across an AFS will indicate the extent to which transfer-enhancing activities currently exist in different AF training programs. A comparison across trainees will indicate similarities and differences in their perceptions of these activities. Results could potentially be used to emphasize specific activities more, for example, if trainees perceived less transfer-enhancing activities than instructors. Furthermore, it would be possible to determine if transfer-enhancing activities are predictable by other AFS and training course variables. For example, do variables such as task learning difficulty, course length, student flow, student-faculty ratio, and instructor experience predict the constructs measured by the questionnaire. These results would enhance the construct validity assessment of the questionnaire, as well as serve a diagnostic purpose of identifying training courses that might benefit from more transfer-enhancing activities.

Climate for Transfer Questionnaire

Administration. Administer the Climate for Transfer Questionnaire to as many airmen in as many Air Force Specialties (AFS) as possible. The questionnaire should be administered 4-8 months after completion of 3-level training so that airmen have sufficient job experience, yet can recall their technical training experiences. The Fidelity portion of the Transfer-Enhancing Questionnaire should be administered at the same time. Administration is recommended to both airmen and supervisors.

Assess factor structure. The primary purpose of this phase is to assess the factor structure of the questionnaire. This will indicate the usefulness of the questionnaire in studying the efficacy of climate in the training transfer process.

Tests of the Training Transfer Model

The same administration of the questionnaires can be used to test portions of the model. If, in fact, each instrument yields only a single (but different) factor, each can still be used to test the model. In fact, it would be a good test of the model to combine these instruments with Ford et al's (1992) Opportunity to Perform measures, along with his self-efficacy and supervisory support measures. That would provide a replication of Ford, et al. (1992), and a test of the current model simultaneously. A standard reaction to training questionnaire also might be administered at the same time as the transfer-enhancement instrument to test that linkage, too.

In summary, this research would determine the psychometric properties of the proposed constructs and refine the items as necessary. Once these constructs have been established, their relationships to training and job performance can be determined. Results will establish the importance of each construct in the training and transfer process, and can ultimately be used diagnostically to identify problem areas and improve transfer enhancing practices in training courses and later in the transfer environment.

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APPENDIX A

Summary of Items Used

Work sheets showing individual item matches are in ink. This summarizes the jungle we are in.

As Noe & Schmitt (NS), William, Thayer & Pond(WTP), and Facteau, et al (F) were all supposedly testing Noe' model, let's look at the item matches:

Job involvement: NS 20 items;	same 20 for WTP;	F 6 items - same as NS&WTP	
Career planning: NS 6	same 6	3 "	ì
Mot to learn: NS 8	6 same, 6 new,	4 same as NS &WTP, 5 new	
Reac to skill assess: 15	3 same, 3 new		
Locus of control: 11	11 same		
Adaptability: 3			
Intended self-explor: 4	4 same	8 of 9 in these two categories	
Environ explor: 5	5 same	the same	
Amount of info: 3	3 same		
Focus 6	6 same		
Effort-perf expect: 7	7 same		
Perf-outcome expect: 7	7 same		
React to tng 18	some same, but altered		
Mot to transfer 8	8, 5 of 8 same		
Support/constraints: 8		10	
Intrinsic incentives		9	
Extrinsic incentives		2	
Social support for tng		23	
Self report of transfer		9 (7 of 9 = results)	
Compliance (volunteer or assigned)		2	

All others were testing their own models:

Mathieu, Tannenbaum & Salas: (MTS)
Career planning: 6 from same source as NS and WTP, but don't have items
Job involvement: 4 " " "
Training related motivation: 6 expectancy outcome - based on Lawler, et al
11 valence instrumentality - " "
Work setting (constraints): 16 based on Peters, et al
Reaction to training : 11 all new

Summarizing for the above 4 investigators:
Job involvement - from Lodahl & Kejner-6 F, 20 NS, 8 WTP, 4 MTS
Career exploration -from Stumpf, Colarelli & Horton -8F, 23 NS, 23 WTP
Career planning - from Gould -3F, 6NS, 6WTP, 6MTS
Motivation to learn-From Baldwin&Ford, Hicks, N&S-9F, 8NS, 13WTP, 11MTS, but this is a VIE calculation for MTS
Task constraints - Peters & O'Connor - 10F, , 8WTP, 14MTS
(See tabulation in ink for details as to item content match)

Ford, et al:
Support - 10 new
Self-efficacy - 8 new
Supv. perceptions of trainee: 12 new
Work flow: 6 new

Rouiller:
All her items are new

Tannenbaum, et al - both studies:
All items are new and are aimed at reactions to recruit training: would be useful only for comparable work in USAF - merely have to substitute Ait Force for Navy
Physical self-efficacy-10
Academic self-efficacy-8
Commitment - 11
Training motivation (VIE type)- same ones used for pretraining and posttraining by changing stem:
Expectancy - 6
Instrumentality - 12
Valence - 12
Trainee expectations/desires/perception - 15 - same ones used pre and posttraining w/ change in stem- These are combined to become Training Fulfillment Index (scoring of these is tricky - see JAP article)

APPENDIX B

Climate Questionnaire - Final Keyed and Grouped by Category

Instructions: This questionnaire is concerned with the use of the training received in Technical Training School or in Field Technical Training (FTD). Whenever the phrase "tech training" is used here, it refers to such formal training, not OJT.

(Note for researchers: Notations following items indicates source:
R=Rouiller; T=Thayer; or scoring directions: R=reverse scored; **number of item in final questionnaire in bold)**

Antecedents:

Goal Cues: (N=6)

Supervisors set performance goals for new airmen consistent with their tech training. R-1 **48**

Supervisors set goals for new airmen that encourage them to use their tech training. R-9 **40**

Supervisors expect airmen to use their tech training on the job. R-22 **18**

Supervisors help airmen set realistic goals for performing the job as a result of their tech training. R-30 **8**

Airmen at this duty station expect new airmen to do the job the way they it was done in tech training. R-40 **42**

Supervisors meet with airmen to set goals following tech training. T **28**

Social Cues: (N=10)

Other airmen at this duty station have the technical knowledge to help new airmen use what they learned in tech training. R-2 **47**

Supervisors give airmen the chance to try out their tech training on the job immediately. R-3 **1**

Supervisors use the same terminology as used in tech training. R-10 **53**

When airmen arrive from tech training, supervisors encourage them to share what they've learned with other airmen. R-13 **21**

Supervisors know how airmen were taught to do the job in tech training. R-14 **22**

Airmen can count on getting answers from supervisors to questions about the use of tech training on the job. R-32 **15**

Supervisors meet regularly with airmen when they arrive from tech training to work on problems they may have in trying to use their training. R-37 **19**

Airmen at this duty station help each other resolve difficult problems relating to the use of tech training on the job. R-49 **31**

When supervisors tell airmen how to do something, they do it the same way it was done in tech training. T **46**

The airmen at this duty station do the job the way they were taught in tech training. T **34**

Task Cues: (N=10)

Jobs at this duty station are designed so that airmen can do the job the way they were trained. R-5 **7**

Job aids are available on the job to support what airmen learned in tech training. R-25 **13**

The equipment at this duty station allows airmen to use the skills gained in tech training. R-33 **37**

The materials needed by airmen to use what they learned in tech training are readily available.T **26**

Airmen could do their jobs better if there weren't so many interruptions. R T **33**

There is never enough time to do the job the way we were taught in tech training. R T **12**

Supplies needed to do the job the way we were taught in tech training are usually available. T **49**

Tools needed to do the job the way we were taught in tech training are usually available. T **14**

The equipment here is the same as we were trained on in tech training. T **32**

When airmen arrive from tech training, there is usually a pile of work to catch up on before they can try to use what they learned in training. R T **30**

Consequences:

Positive Reinforcement: (N=10)

Supervisors at this duty station let new airmen know that they are doing a good job when they use what they were taught in tech training. R-26 **55**

Supervisors appreciate airmen who do their jobs as taught in tech training. R-34 **5**

Airmen who use their tech training are given preference for promotion at this duty station. R-40 **43**

Fellow airmen appreciate airmen who do their jobs as they were taught in tech training. R-47 **24**

Supervisors treat airmen better when they use their tech training.T **51**

Doing the job the way they were trained helps airmen in their AF career. T **36**

When airmen use their tech training, jobs are easier. T **25**

Airmen's jobs are more interesting because of their tech training. T **20**

Supervisors commend airmen publicly when they return from tech training. T **10**

Supervisors praise airmen when they use their tech training. T **54**

Negative Reinforcement & Punishment: (N=10)

Supervisors at this duty station refuse to accept statements or actions from airmen that are different from those learned in tech training. R-7 **39**

Unit commanders are made aware of airmen who do not use techniques taught in tech training. R-16 **38**

When airmen fail to use their tech training, they can expect to be reprimanded. R-27 **9**

Supervisors at this duty station oppose the use of techniques learned in tech training that airmen bring to their jobs. R R-35 **2**

More experienced airmen ridicule the use of methods taught in tech training. R R-8 **35**

When new airmen use the techniques taught in tech training, experienced airmen at this duty station think they are being ineffective R R-17 **52**

If airmen do the job their own way rather than the tech training way, other airmen get angry with them. T **56**

At this duty station, following the procedures and policies taught in tech training results in airmen being told they are not performing correctly. R R-51 **23**

Airmen won't get promoted unless they do the job the tech training way. T **50**

Supervisors give poor performance reports to those who do the job the way it is taught in tech training instead of his/her way. R T **6**

Extinction: (N=10)

Supervisors at this duty station do not notice airmen who use their tech training. R R-18 **29**

Airmen are not aware of the contribution of tech training to their advancement at this duty station. R R-29 **45**

Supervisors pay only lip service to the value and usefulness of tech training. R R-36 **4**

Supervisors at this duty station don't seem to care whether airmen use their tech training. R R-43 **44**

Supervisors pay no attention to how airmen do their jobs. R T **41**

Supervisors couldn't care less whether airmen use their tech training. R T **17**

Supervisors don't tell airmen whether they're doing their job correctly or incorrectly. R T **16**

Airmen could do a better job if someone would tell them what's going on. R T **11**

Supervisors don't care if airmen use their tech training, as long as they get the job done. R T **27**

Airmen have so little chance to use some of the skills learned since tech training, that they probably couldn't perform them now. R T **3**

APPENDIX C

Climate Questionnaire - Final

(Notes for researchers: R=reverse scored; notation should be removed before form is reproduced for administration;
Trainee respondents should be instructed to indicate degree of agreement on 7-point scale as in Part II of the *AGE Task Activity Questionnaire*.)

Instructions: This questionnaire is concerned with the use of the training received in Technical Training School or in Field Technical Training (FTD). Whenever the phrase "tech training" is used here, it refers to such formal training, not OJT.

1. Supervisors give airmen the chance to try out their tech training on the job immediately.

2. Supervisors at this duty station oppose the use of techniques learned in tech training that airmen bring to their jobs. R

3. Airmen have so little chance to use some of the skills learned since tech training, that they probably couldn't perform them now. R

4. Supervisors pay only lip service to the value and usefulness of tech training. R

5. Supervisors appreciate airmen who do their jobs as taught in tech training.

6. Supervisors give poor performance reports to those who do the job the way it is taught in tech training instead of his/her way. R

7. Jobs at this duty station are designed so that airmen can do the job the way they were trained.

8. Supervisors help airmen set realistic goals for performing the job as a result of their tech training.

9. When airmen fail to use their tech training, they can expect to be reprimanded.

10. Supervisors commend airmen publicly when they return from tech training.

11. Airmen could do a better job if someone would tell them what's going on. R

12. There is never enough time to do the job the way we were taught in tech training. R

13. Job aids are available on the job to support what airmen learned in tech training.

14. Tools needed to do the job the way we were taught in tech training are usually available.

15. Airmen can count on getting answers from supervisors to questions about the use of tech training on the job.

16. Supervisors don't tell airmen whether they're doing their job correctly or incorrectly. R

17. Supervisors couldn't care less whether airmen use their tech training. R

18. Supervisors expect airmen to use their tech training on the job.

19. Supervisors meet regularly with airmen when they arrive from tech training to work on problems they may have in trying to use their training.

20. Airmen's jobs are more interesting because of their tech training.

21. When airmen arrive from tech training, supervisors encourage them to share what they've learned with other airmen.

22. Supervisors know how airmen were taught to do the job in tech training.

23. At this duty station, following the procedures and policies taught in tech training results in airmen being told they are not performing correctly. R

24. Fellow airmen appreciate airmen who do their jobs as they were taught in tech training.

25. When airmen use their tech training, jobs are easier.

26. The materials needed by airmen to use what they learned in tech training are readily available.

27. Supervisors don't care if airmen use their tech training, as long as they get the job done. R

28. Supervisors meet with airmen to set goals following tech training.

29. Supervisors at this duty station do not notice airmen who use their tech training. R

30. When airmen arrive from tech training, there is usually a pile of work to catch up on before they can try to use what they learned in training. R

31. Airmen at this duty station help each other resolve difficult problems relating to the use of tech training on the job.

32. The equipment here is the same as we were trained on in tech training.

33. Airmen could do their jobs better if there weren't so many interruptions. R

34. The airmen at this duty station do the job the way they were taught in tech training.

35. More experienced airmen ridicule the use of methods taught in tech training. R

36. Doing the job the way they were trained helps airmen in their AF career.

37. The equipment at this duty station allows airmen to use the skills gained in tech training.

38. Unit commanders are made aware of airmen who do not use techniques taught in tech training.

39. Supervisors at this duty station refuse to accept statements or actions from airmen that are different from those learned in tech training.

40. Supervisors set goals for new airmen that encourage them to use their tech training.

41. Supervisors pay no attention to how airmen do their jobs. R

42. Airmen at this duty station expect new airmen to do the job the way they it was done in tech training.

43. Airmen who use their tech training are given preference for promotion at this duty station.

44. Supervisors at this duty station don't seem to care whether airmen use their tech training. R

45. Airmen are not aware of the contribution of tech training to their advancement at this duty station. R

46. When supervisors tell airmen how to do something, they do it the same way it was done in tech training.

47. Other airmen at this duty station have the technical knowledge to help new airmen use what they learned in tech training.

48. Supervisors set performance goals for new airmen consistent with their tech training.

49. Supplies needed to do the job the way we were taught in tech training are usually available.

50. Airmen won't get promoted unless they do the job the tech training way.

51. Supervisors treat airmen better when they use their tech training.

52. When new airmen use the techniques taught in tech training, experienced airmen at this duty station think they are being ineffective R

53. Supervisors use the same terminology as used in tech training.

54. Supervisors praise airmen when they use their tech training.

55. Supervisors at this duty station let new airmen know that they are doing a good job when they use what they were taught in tech training.

56. If airmen do the job their own way rather than the tech training way, other airmen get angry with them.

APPENDIX D

Retranslation Instructions: (Final Version: 12/9/92)

The materials before you contain over 60 items dealing with various activities that increase the probability that what was learned in training will transfer to the job. In the space that follows are the definitions of the kinds of activities. Please read these definitions carefully. After you have done so, read each item and place it in the category that seems to fit the definition best. If you cannot decide which single category an item goes in, put it in the undecided category, but attach a note giving the names of the categories it seems to fit best.

Overlearning : Overlearning refers to engaging in practice beyond one successful attempt at a new skill, or practicing a skill in the same way repeatedly.

Fidelity: Fidelity refers to the physical or psychological similarity between the training setting and skills taught, and what exists on the job

Varied practice: This is not the same as repeated practice required under overlearning. It refers to learning new knowledge or skills under a variety of conditions or problems during training.

Principles-Meaningfulness This category includes a variety of things that can be done to make material more meaningful, to teach the reasons why things work the way they do.

Cues to monitor own performance (feedback cues): This category refers to being taught how to observe one's own performance so that one knows whether one is doing the job correctly. Cues may come from one's own behavior or from feedback provided by what one did. (In golf: Keeping one's left arm firm, or hitting a slice.)
It also includes the provision of lists or cues to remind one of important points.

Relapse prevention: Relapse prevention training involves helping trainees to recognize situations that may come up after training that will interfere with or prevent one from doing what one was trained to do. It also includes making plans for how to overcome those situations. Please note the difference between this category and the previous one.

Goal Setting: Goal setting is a very specific activity that involves goals or plans set in training to be implemented on the job.

Top Management Support: This category refers to emphasis on the value of training from highly placed administrators or commanders.

APPENDIX E

In-Training Transfer Enhancing Activities (Trainee Version)

Overlearning, fidelity, varied practice, principles-meaningfulness, cues to monitor own performance (feedback cues), relapse prevention, goal setting, top management support
Note to researchers: Notations following each item indicate source. **Figure in bold is the number of the item in the final questionnaire.**
These items went through the retranslation process with Brandi Barham, Winston Bennett and Dennis Gettman. Complete agreement was reached on all but 13 items. These were rewritten, or moved to the correct category, except for those written by Teachout, whose items were added later. Instructions were rewritten to move items identified as "learning points" to "cues."

Overlearning (10)

During training, we practiced using the skills taught over and over.
3-Rouiller (R) - Self-control cues **22**
During training, we were made to practice the skills taught until we could do them in our sleep.
Thayer **30**
During training, we practiced the skills taught until we could do them without a mistake.
Thayer **50**
During training, they had us study so hard that we practically had all the material memorized.
Thayer **5**
During training, we had to go over everything again and again.
Thayer **1**
During training, they went so fast that we never had a chance to try things out. R
Thayer **39**
During training, if you didn't get it the first time, there was no time to learn it later. R
Thayer/Teachout **19**
During training, there was never enough time to really learn a skill R
Morales **18**
During training, there was always an opportunity to practice whatever we learned.
Morales **37**
During training, we went over things again and again, so we wouldn't forget them later on the job.
Teachout **44**

Fidelity (11)

During training, we were allowed to practice handling real and relevant problems.
12-R-self-control cues **58**
During training, we practiced techniques and methods that are different from those used on the job here. R
6-R-self-control cues **69**
The equipment on the job doesn't operate the way it did in training. R
46-R-Task cues **68**
The equipment we used during training is the same as we use on the job.
Thayer **42**
The procedures followed on the job are very different from what we were taught in training. R
Thayer **51**
The problems we learned to solve during training are similar to those at this duty station.
Morales **2**
The tools and materials used on the job differ from those used in training. R
Thayer **36**
The environment that we were trained in was very similar to the location we work in here.
Wimpee **60**
Our jobs are designed so that airmen can do the job the way we were trained.
R5-task cues **62**
Tools are usually available to do the job the way we were taught in tech training.
Thayer **47**
The procedures taught in training are the ones we use on the job.
Teachout **21**

Varied practice (Stimulus variability) (6)

During training, we had the chance to try our new skills on a variety of problems.
Thayer **66**
During training, they gave us a lot of different problems to work on.
Thayer **56**
During training, we never had the chance to try our new skills on different problems. R
Thayer **52**
During training, it was sometimes hard to learn because they kept making us use our new skills on different problems.
Thayer **15**
During training, we had the chance to work on a variety of problems that required the same knowledge and skill.
Teachout **4**

During training, we never had the chance to try more challenging tasks that required advanced knowledge and skill. R

Teachout **61**

Principles-Meaningfulness (6)

During training, instructors explained why things worked the way they did.

Thayer **10**

During training, they explained why it was necessary to do things a certain way.

Thayer **25**

During training, they taught us rules that applied to lots of different problems.

Thayer **31**

During training, they never told us why, just told us to do it. R

Thayer **45**

The training we received really made things clear as to why things worked the way they did.

Thayer **26**

The training we received really made it clear why it was necessary to do things a certain way.

Wimpee **20**

Cues to monitor own performance (Feedback cues) (13)

During training, we were taught how to gradually use the new techniques and ideas on the job.

10-R-self-control cues **28**

During training, we learned how to handle any mistakes we might make later on the job.

5-R-self control cues **63**

During training, they taught us things to look for to make sure we were doing the job correctly.

Thayer **40**

During training, they taught us check-points so that we could be sure we were doing the job correctly.

Thayer **41**

It would have helped us to remember things in training if they had given us some memory aids, such as check lists, color-coded diagrams, etc. R

Thayer **17**

During training, they gave us lists of steps to follow so we wouldn't forget anything.

Thayer **70**

Job aids are available on the job to support what airmen learned in tech training.

R25-task cues **14**

During training, they taught us how to check our own work to make sure we were doing things right.

Thayer **12**

During training, they always told us whether we were doing the job correctly. Thayer **48**

During training, we weren't taught how to identify mistakes as we made them. R

Morales **16**

During training, it was impossible to tell when we made mistakes. R

Morales **64**

During training, we couldn't tell whether or not we made mistakes. R
Morales **32**
During training, we were taught how to recognize our mistakes as we made them.
Morales **43**

Relapse Prevention (13)

During training, we were told about problems we might have on the job in using what we learned.
Thayer **59**
During training, the instructors discussed the possibility of no supervisory support for our training when we were on the job. R
11-R-self-control cues **65**
During training, we worked out plans to resolve problems that might prevent us from using our training later on the job.
9-R-self control cues **27**
During training, they warned us about the need to practice on the job if we were to keep our skills at a high level.
Thayer **33**
During training, we talked about situations that might prevent us from using our new skills and ways to deal with those situations.
Thayer **13**
During training, we talked about what to do if people at our new duty station told us to do the job a different way.
Thayer **49**
During training, they warned us about the need to remain calm and do our jobs as trained when a crisis occurred on the job or out in the field.
Thayer **11**
During training, we were taught to work with crisis situations on the job.
8-R-Self-control cues **53**
During training, we were prepared for the reaction of other airmen to the use of tech training at this duty station.
2-R-self-control cues **55**
During training, we discussed problems we might encounter at our duty station when we first used tech training.
Morales **35**
During training, we discussed how other airmen's attitudes toward tech training might affect our job performance.
Morales **46**
During training we discussed how our supervisors' attitudes toward our training might affect our job performance.
Thayer/Wimpee **54**
During training, we talked about how to develop good work habits, so we would remember what we were taught when we were on the job.
Teachout **8**

Goal Setting (7)

During training, we set goals for using our new skills at our duty stations.
Thayer **57**

During training, they made us sit down and make plans for using our training on the job.
Thayer **29**

During training, we made plans for applying our new skills on the job.
Thayer **23**

During training, they talked about the importance of setting goals for using our training on the job.
Thayer **7**

During training, we talked to each other about the goals we set for using our training on the job.
Thayer **38**

They warned us during training that if we didn't set some specific goals for using our new skills on the job that they would begin to get rusty.
Thayer **67**

They urged us during training to share the goals for using our skills with our new supervisors.
Thayer **24**

Top Management Support (4)

During training, the school commander gave a talk on the importance of our training.
Thayer **34**

During training, the school commander stressed the need to work hard and master what we were to learn.
Thayer **3**

When we reported to our duty station, the unit commander stressed the importance of our tech training.
Thayer **9**

At our duty station, the unit commander insists on the use of tech training on the job.
Thayer **6**

APPENDIX F

Transfer-Enhancing Questionnaire - Final

Note to researchers: R indicates reverse scoring. Notation should be removed before printing. Instructions should be given involving agreement on a 7-point scale such as in the AGE questionnaire.

1. During training, we had to go over everything again and again.

2. The problems we learned to solve during training are similar to those at this duty station.

3. During training, the school commander stressed the need to work hard and master what we were to learn.

4. During training, we had the chance to work on a variety of problems that required the same knowledge and skill.

5. During training, they had us study so hard that we practically had all the material memorized.

6. At our duty station, the unit commander insists on the use of tech training on the job.

7. During training, they talked about the importance of setting goals for using our training on the job.

8. During training, we talked about how to develop good work habits, so we would remember what we were taught when we were on the job.

9. When we reported to our duty station, the unit commander stressed the importance of our tech training.

10. During training, instructors explained why things worked the way they did.

11. During training, they warned us about the need to remain calm and do our jobs as trained when a crisis occurred on the job or out in the field.

12. During training, they taught us how to check our own work to make sure we were doing things right.

13. During training, we talked about situations that might prevent us from using our new skills and ways to deal with those situations.

14. Job aids are available on the job to support what airmen learned in tech training.

15. During training, it was sometimes hard to learn because they kept making us use our new skills on different problems.

16. During training, we weren't taught how to identify mistakes as we made them. R

17. It would have helped us to remember things in training if they had given us some memory aids, such as check lists, color-coded diagrams, etc. R

18. During training, there was never enough time to really learn a skill R

19. During training, if you didn't get it the first time, there was no time to learn it later. R

20. The training we received really made it clear why it was necessary to do things a certain way.

21. The procedures taught in training are the ones we use on the job.

22. During training, we practiced using the skills taught over and over.

23. During training, we made plans for applying our new skills on the job.

24. They urged us during training to share the goals for using our skills with our new supervisors.

25. During training, they explained why it was necessary to do things a certain way.

26. The training we received really made things clear as to why things worked the way they did.

27. During training, we worked out plans to resolve problems that might prevent us from using our training later on the job.

28. During training, we were taught how to gradually use the new techniques and ideas on the job.

29. During training, they made us sit down and make plans for using our training on the job.

30. During training, we were made to practice the skills taught until we could do them in our sleep.

31. During training, they taught us rules that applied to lots of different problems.

32. During training, we couldn't tell whether or not we made mistakes. R

33. During training, they warned us about the need to practice on the job if we were to keep our skills at a high level.

34. During training, the school commander gave a talk on the importance of our training.

35. During training, we discussed problems we might encounter at our duty station when we first used tech training.

36. The tools and materials used on the job differ from those used in training. R

37. During training, there was always an opportunity to practice whatever we learned.

38. During training, we talked to each other about the goals we set for using our training on the job.

39. During training, they went so fast that we never had a chance to try things out. R

40. During training, they taught us things to look for to make sure we were doing the job correctly.

41. During training, they taught us check-points so that we could be sure we were doing the job correctly.

42. The equipment we used during training is the same as we use on the job.

43. During training, we were taught how to recognize our mistakes as we made them.

44. During training, we went over things again and again, so we wouldn't forget them later on the job.

45. During training, they never told us why, just told us to do it. R

46. During training, we discussed how other airmen's attitudes toward tech training might affect our job performance.

47. Tools are usually available to do the job the way we were taught in tech training.

48. During training, they always told us whether we were doing the job correctly.

49. During training, we talked about what to do if people at our new duty station told us to do the job a different way.

50. During training, we practiced the skills taught until we could do them without a mistake.

51. The procedures followed on the job are very different from what we were taught in training. R

52. During training, we never had the chance to try our new skills on different problems. R

53. During training, we were taught to work with crisis situations on the job.

54. During training we discussed how our supervisors' attitudes toward our training might affect our job performance.

55. During training, we were prepared for the reaction of other airmen to the use of tech training at this duty station.

56. During training, they gave us a lot of different problems to work on.

57. During training, we set goals for using our new skills at our duty stations.

58. During training, we were allowed to practice handling real and relevant problems.

59. During training, we were told about problems we might have on the job in using what we learned.

60. The environment that we were trained in was very similar to the location we work in here.

61. During training, we never had the chance to try more challenging tasks that required advanced knowledge and skill. R

62. Our jobs are designed so that airmen can do the job the way we were trained.

63. During training, we learned how to handle any mistakes we might make later on the job.

64. During training, it was impossible to tell when we made mistakes. R

65. During training, the instructors discussed the possibility of no supervisory support for our training when we were on the job. R

66. During training, we had the chance to try our new skills on a variety of problems.

67. During training, the instructors discussed the possibility of no supervisory support for our training when we were on the job. R

68. The equipment on the job doesn't operate the way it did in training. R

69. During training, we practiced techniques and methods that are different from those used on the job here. R

70. During training, they gave us lists of steps to follow so we wouldn't forget anything.

APPENDIX G

Transfer-Enhancing Questionnaire - Final - Trainer Version (Does not include items 6 and 9 of the trainee version, Appendix F)

Note to researchers: R indicates reverse scoring. Notation should be removed before printing. Instructions should be given involving agreement on a 7-point scale such as in the AGE questionnaire.

1. During training, trainees were required to go over everything again and again.

2. The problems trainees learned to solve during training are similar to those at their duty stations.

3. During training, the school commander stressed the need to work hard and master what trainees were to learn.

4. During training, trainees had the chance to work on a variety of problems that required the same knowledge and skill.

5. During training, trainees were required to study so hard that they practically had all the material memorized.

7. During training, instructors talked to the trainees about the importance of setting goals for using training on the job.

8. During training, trainees were encouraged to talk about how to develop good work habits, so they would remember what they were taught when they were on the job.

10. During training, instructors explained why things worked the way they did.

11. During training, trainees were warned about the need to remain calm and do their jobs as trained when a crisis occurred on the job or out in the field.

12. During training, trainees were taught how to check their own work to make sure they were doing things right.

13. During training, trainers talked about situations that might prevent trainees from using their new skills and ways to deal with those situations.

14. Job aids are available on the job to support what airmen learned in tech training.

15. During training, trainees sometimes found it hard to learn because trainers kept making them use their new skills on different problems.

16. During training, trainees weren't taught how to identify mistakes as they made them. R

17. It would have helped trainees to remember things in training if they had been given some memory aids, such as check lists, color-coded diagrams, etc. R

18. During training, there was never enough time to really learn a skill R

19. During training, if one didn't get it the first time, there was no time to learn it later. R

20. The training trainees received really made it clear why it was necessary to do things a certain way.

21. The procedures taught in training are the ones trainees use on the job.

22. During training, trainees practiced using the skills taught over and over.

23. During training, trainees made plans for applying their new skills on the job.

24. Trainees were urged during training to share their goals for using their skills with their new supervisors.

25. During training, trainers explained why it was necessary to do things a certain way.

26. The training received really made things clear as to why things worked the way they did.

27. During training, trainees worked out plans to resolve problems that might prevent them from using their training later on the job.

28. During training, trainees were taught how to gradually use the new techniques and ideas on the job.

29. During training, trainees were made to sit down and make plans for using their training on the job.

30. During training, trainees were made to practice the skills taught until they could do them in their sleep.

31. During training, trainees were taught rules that applied to lots of different problems.

32. During training, traineesz couldn't tell whether or not they made mistakes. R

33. During training, trainees were warned about the need to practice on the job if they were to keep their skills at a high level.

34. During training, the school commander gave a talk on the importance of training.

35. During training, trainees discussed problems they might encounter at their duty station when they first used tech training.

36. The tools and materials used on the job differ from those used in training. R

37. During training, there was always an opportunity to practice whatever trainees learned.

38. During training, trainees talked to each other about the goals they set for using their training on the job.

39. During training, trainers went so fast that trainees never had a chance to try things out. R

40. During training, trainees were taught things to look for to make sure they were doing the job correctly.

41. During training, trainees were taught check-points so that they could be sure they were doing the job correctly.

42. The equipment used during training is the same as trainees use on the job.

43. During training, trainees were taught how to recognize their mistakes as they made them.

44. During training, trainees went over things again and again, so they wouldn't forget them later on the job.

45. During training, trainees were never told why, they were just told to do it. R

46. During training, trainees discussed how other airmen's attitudes toward tech training might affect their job performance.

47. Tools are usually available to do the job the way trainees were taught in tech training.

48. During training, trainees were always told whether they were doing the job correctly.

49. During training, trainees talked about what to do if people at their new duty station told them to do the job a different way.

50. During training, trainees practiced the skills taught until they could do them without a mistake.

51. The procedures followed on the job are very different from what trainees were taught in training. R

52. During training, trainees never had the chance to try their new skills on different problems. R

53. During training, trainees were taught to work with crisis situations on the job.

54. During training trainees discussed how their supervisors' attitudes toward their training might affect their job performance.

55. During training, trainees were prepared for the reaction of other airmen to the use of tech training at their duty station.

56. During training, trainees were given a lot of different problems to work on.

57. During training, trainees set goals for using their new skills at their duty stations.

58. During training, trainees were allowed to practice handling real and relevant problems.

59. During training, trainees were told about problems they might have on the job in using what they learned.

60. The environment that airmen were trained in was very similar to the location they work in here.

61. During training, trainees never had the chance to try more challenging tasks that required advanced knowledge and skill. R

62. Jobs are designed so that airmen can do the job the way they were trained.

63. During training, trainees learned how to handle any mistakes they might make later on the job.

64. During training, it was impossible for trainees to tell when they made mistakes. R

65. During training, the instructors discussed the possibility of no supervisory support for training when trainees were on the job. R

66. During training, trainees had the chance to try their new skills on a variety of problems.

67. During training, the instructors discussed the possibility of no supervisory support for this training when trainees were on the job. R

68. The equipment on the job doesn't operate the way it did in training. R

69. During training, trainees practiced techniques and methods that are different from those used on the job. R

70. During training, trainees were give lists of steps to follow so they wouldn't forget anything.